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MEANS OF COMPLETING RADIOFICATION OF THE USSR

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During the postwar Stalin Plan, the radio reception network of the Soviet Union has been doubled as compared with 1945 and has increased 75% in comparison with the prewar level. The number of wired radio centers has increased 3.3 times. This will permit us to speed up radiofication in the near future and eventually to complete radiofication of our country.

One proof of the great interest of Stalin, the party, and the government in this matter is the 1949 decree "On Measures for the Improvement of Radiofication in the USSR." This decree, defining concrete measures for completing radiofication in the next few years, is of particular importance now that Communist education of the laboring masses has become our primary goal.

The concentration of radiofication matters in the Ministry of Communications will expedite introduction of the latest engineering achievements into radiofication, provide constant technical control over all equipment, and ensure efficient utilization of personnel, equipment, and finances.

One of the most important steps in implementing the decree is that of preparing a general plan for the radiofication of oblasts, krays, and republics to conform with the state-approved program of radio construction. The plan must correctly solve the engineering and economic problems involved in rural radiofication and take into account the latest developments in radio engineering.

Beside building overhead lines for wired radio transmission, underground cables with vinyl chloride insulation should be used extensively. Another consideration is intraregional telephone lines which can be used for radiofication without impairing normal telephone service. Speeding up radiofication

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will require, in addition to the use of existing power lines, consideration of plans for kolkhoz electrification, so that the kolkhoz networks may be used for wired radio transmission lines.

Among the priority measures for rural radiofication are: complete utilization of the power of both wired radio centers belonging to the Ministry of Communications and centers of other departments taken over by the ministry; construction of large interkolkhoz wired radio centers of 500 w and above; and construction of medium- and low-power centers.

Full use of the equipment in existing centers will make it possible, with the aid of feeder lines, to establish many million additional wired radio points in kolkhozes without large financial investment or any great increase in personnel.

The desirability of building large interkolkhoz wired radio centers of 500 w or above has been proven in many regions. Such centers can operate loudspeakers in streets, stadiums, and clubs and make local broadcasting possible. In addition, 100-w dc centers must be established in places where there are no electric power networks, or where the networks do not supply power regularly during the hours the centers are in operation.

In such cases, the center must be provided with its own power supply, consisting of an L-3/2 gasoline motor and 3DN-2500 generator. It is true that the cost of these wired radio centers is somewhat greater because of the additional capital investment and higher operating expenses, but such power supplies must be built because the power stations at many populated points operate fewer hours than the wired radio centers and some power stations cannot maintain the additional load of the radio centers.

Small ac-dc wired radio centers, which supply up to 50 [loudspeaker] points, have been designed for small kolkhozes. These will greatly accelerate the radiofication of sparsely populated regions far from large regional centers.

A special tube of the 1-N-1 type had to be designed to provide low power drain. Batteries, electric mains, and even wind-driven units can be used for power supply. The present wind-driven installations, designed to operate at a minimum wind velocity of 3 m per sec, can be used in about 90% of the USSR and should be used extensively in rural radiofication.

Economical loudspeakers are necessary for wired radio centers. The basic requirement for them is high-quality reproduction with minimum power consumption.

The Ministry of the Communications Equipment Industry has designed an economical dynamic speaker, but it is not yet in production. This speaker is more sensitive than the Rekord and gives much better sound reproduction.

A second economical loudspeaker has been developed by a collective of the "Radiotekhnika" Plant. It consumes less power than the speaker manufactured by the ministry, is well-designed, and gives excellent sound quality.

Economical loudspeakers should be used not only in the small wired radio centers for villages, but also in the larger ones for cities. Use of these speakers will make it possible to supply many more wired radio points without increasing the power of the center.

The enormous volume of work involved in rural radiofication cannot be done by building overhead lines alone, because they require an immense amount of wood, metal, and porcelain or glass. Moreover, the short life of the poles and repairs on overhead lines cause high maintenance. This is especially true in areas without forests. Our industry has mastered the production of underground cable with vinyl chloride insulation and these cables should be used for radiofication of these areas. Lines about 8 km long for wired radio operation can be laid using this cable. Hence, populated points within this distance from a radio center could have these reliable and economical lines carrying radio broadcasts to them.

The cost per km of cable of this type with strands 0.3 mm in diameter is only one third that of the materials used for overhead lines. More than 1,000 km of underground lines were laid in 1949. The durability of this cable under winter conditions has been proven.

The cable-layers which were built and tested in 1949 will speed up the introduction of underground cables. The simplest of these models can be built by any MTS workshop and can be used to lay 15 km of cable in one workday.

Os'makov, the works manager of the Stavropol Division of the Soyuztekhradio, has devised a reliable method of splicing the vinyl chloride casing by means of a special tool. This method speeds up cable laying substantially.

Equipment which will permit us to use intraregional telephone lines to carry broadcast programs on a carrier frequency and to supply wired dc radio centers from a distance will also be tested in kolkhoz radiofication.

In this new method of rural radiofication, a simple amplifier which will ensure good transmission to 50-60 points is installed in populated areas connected by telephone with a regional center. An engineer at the regional wired radio station can switch this amplifier on and off by remote control. This method will also permit radiofication of many populated areas without using materials and money to construct and maintain feeder lines for wired radio centers.

Radiofication of part of the kolkhozes in Leningrad, Khar'kov, Kiev and other oblasts will be accomplished by means of equipment for rf broadcasting on low-voltage electric transmission lines. In this method, a high frequency is transmitted from the power-supply point, and modulated by the broadcast program at a higher level. A selenium rectifier is installed to supply power to the subscriber's loudspeaker.

These new radiofication methods are extremely important in oblasts with a well developed electrification network and intraregional telephone communications. Utilization of these lines will make it possible to complete radiofication of a great many populated areas in the USSR in a very short time with great economy of materials and money.

The vast territory of the Soviet Union requires a combination of the wired and wireless radiofication methods. Besides developing the wired system of radiofication, receivers should be widely introduced. By this means, even outlying parts of the USSR could shortly have the benefits of radiofication. For this reason, wireless radio should not be regarded merely as an auxiliary radiofication method. The opinion of various leaders that wired radiofication is the only reliable method is completely erroneous. Our country can make equal use of ac or battery receivers. Villages particularly need an economical two- or three-tube battery receiver.

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The Rodina receiver, designed for nonelectrified areas, requires many dry cells; in addition, its operating expense (the Rodina draws 2.12 w power) prohibits its mass use in rural radiofication. In 1949, the "Radiotekhnika" [illegible] Plant designed a battery receiver which required only 0.5 w as its total power. Its design would ensure low prices and consequently wide distribution.

The Ministry of the Communications Equipment Industry has also designed a battery receiver of the Iskra type, suitable for mass production, which draws only about 1 w power.

In March 1950, the Ministry of Communications USSR announced a competition for the best design of rural radiofication equipment. This competition was designed to interest wide circles of engineers, technicians, and inventors, as well as collectives in plants and scientific research institutes, in the development of new economical equipment for rural radiofication based on the latest engineering developments. This competition should produce a cheap battery radio and thus speed up rural radiofication.

Many ministries and commercial organizations should help in promoting the rapid completion of radiofication as a great cultural and political task. It is the duty of every chief of an oblast administration in the Ministry of Communications and all administrations of wired radio networks to speed up the installation of loudspeaker points. Daily assistance must be given by local party and soviet organizations in developing construction of wired radio systems by the local populace. Workmen in wired radio centers must consider it their duty to ensure uninterrupted operation of the centers and good sound reproduction at all points.

Difficult and important problems confront the Ministry of the Communications Equipment Industry USSR. It must organize the production of equipment for wired kolkhoz radio centers and speed up the production of mass-produced battery receivers and radio parts. It must arrange for production of economical loudspeakers and satisfy the demand for cheap and durable batteries for receivers. The workers in this ministry must remember that the problems of radiofication cannot be solved without their active and creative participation.

Scarcely less important are the tasks of the consumer cooperatives. The Tsentrosoyuz (Central Union of Consumers' Associations) is the chief supplier of materials and equipment for rural radiofication. This circumstance will force the trading network of consumer cooperatives to reorganize its work. Each village cooperative should demonstrate that its radios are in good working condition before selling them. For this purpose, every shop should have an antenna and the salesmen should know how to operate the radios. Each rayon consumer cooperative shop should have radio parts in stock.

Successful execution of the government's decree on completing the radiofication of the USSR largely depends on the level of mass-agitation work among the rural population. Experience in the radiofication of kolkhozes has shown that wherever kray, oblast, and rayon committees of the VKP(b) made radiofication problems one of the priority mass-political measures, radio soon became part of the life of the village. For example, under the direction and with the aid of the Omsk Oblast Committee of the VKP(b), almost all the kolkhozes in the oblast have either radios or wired radio points in every home. Much has also been done in this line in Kursk Oblast, where the 1949 plan was considerably exceeded.

However, there are also cases where leaders of rayon organizations and chiefs of offices in the Ministry of Communications do not make use of the power of centers which are already built. There are examples of such conduct in Krasnodar and Stavropol krays and in other places. This shows that these

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rayon soviet and party organizations have not popularized installation of radio points among the population and that the communications workers have not displayed the proper initiative and sense of responsibility in developing wired radio lines.

DOSARM (Volunteer Society for Cooperation With the Army) also has a role in carrying out the decree of the Council of Ministers USSR. Through the initiative of radio amateurs of the Gor'kiy Radio Club and a DOSARM collective in the Isakovo intermediate school, Smolensk Oblast, great impetus was given in 1949 to competition among radio amateurs in the mass radiofication of rural kolkhozes. This action enabled tens of thousands of kolkhoz residents to hear Soviet broadcasts. The radio amateurs installed 60,000 new receivers (including crystal sets) and repaired 7,500 receivers and 70 wired radio centers for kolkhozes.

It is DOSARM's task to make sure that the thousands of Soviet radio amateurs participate actively in the radiofication of the country -- not only to increase the number of radios and wired radio points, but also to contribute to the uninterrupted operation of these points. For this purpose, rural radio amateurs must be given the necessary help in the organization of educational and construction work and in the popularization of radio engineering. Equipment for rural radiofication should be prominently displayed in radio amateur exhibits. Amateurs can and must do a great deal for radiofication of the country in general and of rural areas in particular.

Radio amateurs must try to keep wired radio centers in kolkhozes in operation. Often, in rural districts, a wired radio center is built in a kolkhoz, involving a large investment, and then an untrained radio operator is set to work. The center works for a time, and then falls silent, "crippled" by unskilled operation. Communications organizations have now begun to give monthly courses for inspectors of wired radio centers. These should be very good if most of the students are radio amateurs with some training in radio engineering.

The organization of radio repair work is a very serious problem. The Ministry of Communications, in accordance with the decree of the Council of Ministers USSR, is now taking steps to improve the organization of repair service for radio receivers and kolkhoz wired radio systems. This year, more than 200 new radio repair shops will be opened and service will be organized for the wired radio centers of the Ministry of Communications. Radio amateurs can do a great share of this work. At present, radios or loudspeakers in rural districts have to be sent to a municipal workshop to be repaired, even when the trouble is so minor that they could easily be repaired on the spot.

Tens of thousands of radios are in collective use in village reading rooms and clubs. There are more than 50,000 such radios in the RSFSR alone. They are intended to serve many millions of listeners. It is a great pity that, for one reason or another, some of these radios are not working. It would be a good idea to have radio amateurs become "patrons" of each radio in collective use and see to its uninterrupted operation.

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